

Sir David Gill, Mr. Theodore Reunert, and others have taken a prominent part in the initial work. The South African Association for the Advancement of Science is cordially cooperating in the local organisation, and will join with the British Association in attending the meeting.

The aim of the council has been to secure the attendance of a representative body of British men of science, including specialists in various lines of investigation, and that, along with the generous support of the people and authorities in South Africa, should go far to ensure the success of the meeting and to stimulate local scientific interest and research.

THE ROYAL COMMISSION ON COAL SUPPLIES.

THE Royal Commission appointed on December 28, 1901, to inquire into the extent and available resources of the coalfields of the United Kingdom has issued its final report, which, in 38 pages, contains an able summary of the vast amount of valuable information submitted by the numerous witnesses examined. The Commission originally appointed consisted of Lord Allerton, Sir W. T. Lewis, Sir Lindsay Wood, Sir C. Le Neve Foster, and Messrs. T. Bell, W. Brace, A. C. Briggs, H. B. Dixon, J. S. Dixon, E. Hull, C. Lapworth, J. P. Maclay, A. Sopwith, J. J. H. Teall, and R. Young. Mr. A. Strahan was subsequently added to the Commission; Sir C. Le Neve Foster and Mr. Ralph Young died before the inquiry was completed.

On the whole the report is of a reassuring character. Adopting 4000 feet as the limit of practicable depth in working, and one foot as the minimum workable thickness, the commissioners estimate the available quantity of coal in the proved coalfields of the United Kingdom to be 100,914,668,167 tons, as compared with the 90,207,285,398 tons estimated by the Coal Commission of 1871, notwithstanding the fact that 5,694,928,507 tons have been raised in the meantime. The excess is accounted for by the more accurate knowledge of the coal-seams. It is also estimated that there are 39,483 million tons of coal in the concealed and unproved coalfields.

It is thought that in future thin seams will be worked more extensively than at present, and that the use of coal-cutting machines will facilitate this. The amount of unavoidable loss incident to coal-mining is a serious factor in estimating the available resources. Much coal is lost by leaving unnecessary barriers between properties, and a certain amount must necessarily remain in order to support the surface. The amount thus left might perhaps be reduced by the introduction of the methods employed on the Continent and in America of packing excavations with water-borne sand or other materials. The recovery of coal formerly abandoned might be facilitated by the establishment of central pumping stations.

The possible economies to which attention is directed comprise the adoption of coal-cutting machines, of which 483 were in use in 1902 and 643 in 1903, and the use of electricity for the transmission of power. The importance of cleaning, sizing, and sorting coal is also strongly urged, and the extended adoption of coking advocated. In this connection the advantages of by-product coke ovens are pointed out, and it is shown that washing and compression render it possible to coke many coals previously considered worthless. It is probable that briquettes will in future be more largely used for steam and domestic purposes, and there appears to be a promising field

for research for the discovery of a less smoky and less costly binding material than pitch, which is now chiefly used.

In view of the dearth of statistics of coal consumption, the following estimate for 1903 is of special interest:—

	Tons
Railways	13,000,000
Coasting Steamers... ..	2,000,000
Factories	53,000,000
Mines	18,000,000
Iron and steel industries	28,000,000
Other metals and minerals	1,000,000
Brick works and potteries, glass works and chemical works	5,000,000
Gas works	15,000,000
Domestic	32,000,000
Total	167,000,000

It is calculated by Mr. Beilby that in this total there is a possible saving of 40 to 60 million tons. More particularly in connection with the raising of steam there are immense economies capable of realisation. Economy in the production of power may be effected by the combustion of gas obtained as a by-product. Information submitted by Mr. Bennett Brough points to increasing opportunities of utilising blast-furnace waste gases as a source of power. Waste gases from coke ovens might similarly be utilised. Gas engines are referred to as the most economical of heat motors, but increased efficiency both thermally and mechanically is still possible. The importance of the development of producer-gas plants is strongly urged as rendering possible the utilisation of inferior coal. Interesting information is given regarding various other ways in which economies in consumption may be effected. Regret is expressed that the recommendations of the Mining Royalties Commission of 1893 and of the Departmental Committee of the Home Office in 1895 regarding mineral statistics had not been carried out. The commissioners recommend that accurate information on the coal industry should be published by one authority, and they think that it would be of great advantage if particulars of deep borings could be preserved in a Government office.

The report must necessarily attract great attention from mining engineers and economists; and it should also be carefully studied by students in mining classes. It is essentially a cautious document; and the general public will doubtless be disappointed that Lord Allerton and his colleagues have made no sensational prophecies as to the probable duration of our coal supplies, and have given no indication as to the way in which their estimate of the available tonnage of coal compares with that of other countries. Their report certainly shows that, while the coal resources are ample, the cost of coal is not likely to decrease, as the improved methods and appliances will probably be neutralised by the increased cost of working deeper and thinner seams. Where we should be glad of clearer light from the Royal Commission is on the question of the probable condition of competing coal-producing countries when the cost of production in Great Britain is considerably raised. It is futile to offer a detailed criticism of the final report until the sections containing the reports of the district commissioners, the report of the geological committee, and the minutes of evidence and appendices are published. The probable duration of the coalfields and the colonial and foreign coal resources appear to have been dealt with in special reports written respectively by Mr. R. Price-Williams and Mr. Bennett Brough, and to these the commissioners direct attention.